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EXAMINER

FLORY, CHRISTOPHER A

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL L. ELLINGSON

Appeal 2015-003268
Application 13/647,705
Technology Center 3700

Before GEORGE R. HOSKINS, MICHAEL L. WOODS, and
ARTHUR M. PESLAK, *Administrative Patent Judges*.

PESLAK, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Michael L. Ellingson (“Appellant”) appeals under 35 U.S.C. § 134(a) from the Examiner’s Final decision rejecting claims 1–20.¹ We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ Appellant submits the real party in interest is Medtronic, Inc. Appeal Br. 3.

THE CLAIMED SUBJECT MATTER

Claim 1, reproduced below, is illustrative of the claimed subject matter.

1. An implantable medical device comprising:
a therapy module configured to generate pacing therapy for a heart of a patient; and
a control module configured to detect a condition indicative of the presence of a magnetic resonance imaging (MRI) device, switch operation from a first pacing therapy program to a second pacing therapy program in response to detecting the condition indicative of the presence of the MRI device, and while operating in the second pacing therapy program, control the therapy module to generate a pacing pulse to an atrium of the heart of the patient during a time period between the end of an atrial refractory period of a previous atrial depolarization and the end of a ventricular refractory period of a previous ventricular depolarization corresponding to the previous atrial depolarization.

REJECTIONS

- 1) Claims 1–8 and 10–20 are rejected under 35 U.S.C. § 102(b) as anticipated by Funke (US 2003/0144705 A1, published July 31, 2003),
- 2) Claim 9 is rejected under 35 U.S.C. § 103(a) as unpatentable over Funke and Stubbs (US 8,639,331 B2, issued Jan. 28, 2014).

DISCUSSION

Rejection 1

The Examiner finds that Funke discloses all the limitations of independent claims 1, 11, and 20. Final Act. 2–3. Appellant contends that Funke does not disclose the control module, recited in claim 1, configured to control a therapy module

to generate a pacing pulse to an atrium of the heart of the patient during a time period between the end of an atrial refractory period of a previous atrial depolarization and the end of a ventricular refractory period of a previous ventricular depolarization corresponding to the previous atrial depolarization.²

Appellant argues that Funke discloses an interference pacing mode providing “fixed rate pacing that is independent of sensing” that is “determined by incrementing the mean heart rate by an increment.” Appeal Br. 5. Appellant argues that the Examiner erroneously equated Funke’s teaching of “atrial pacing timing based on a sensed atrial and/or ventricular escape interval” to the time period recited in claim 1. *Id.* at 6 (referring to Final Act. 3). Appellant argues that in Funke

a pacing escape interval establishes a prevailing pacing rate. For atrial pacing, the pacing escape interval would be set so that it times out when the subsequent atrial pacing pulse is to be delivered. In other words, the pacing escape interval would be the amount of time between a last atrial paced event and the current atrial paced event or the A-A interval, see, e.g., paragraph [0083] of Funke. On the other hand, a refractory period is the period of time during which the chamber(s) of the heart will not depolarize in response to an electrical impulse . . . This is separate and distinct from the pacing escape interval used to establish the pacing rate. *Id.*

² Independent claims 11 and 20 contain a substantially similar limitation. Appeal Br. 14, 15–16 (Claims App.).

The Examiner responds that Funke “discloses an asynchronous overdrive pacing modality that is independent of underlying physiology” and the delivery of the atrial pacing pulse as recited “is simply a matter of a chosen timing.” Ans. 4–5. The Examiner submits that Funke teaches the base pacing mode has a pacing rate limit of 60-120 bpm and the interference mode increases the rate by either a percentage of up to 10% or a set rate of 10-20 bpm higher than the paced rate. *Id.* at 5 (citing Funke, ¶¶ 58, 59, 74–77). From this the Examiner concludes that Funke is “more than capable of providing the pacing pulse” during the time period recited in claim 1 because the cited portions of Funke allow for an “interference pacing rate of up to 140 bpm, or an interval of approximately 428 ms, which is reasonably within the physiological range of ventricular refractory period lengths.” *Id.* For the following reasons, we do not sustain the rejection of claim 1.

Appellant’s recited second pacing therapy program is illustrated in Appellant’s Figure 4B. AE1 and AE2 are atrial events and VE1 and VE2 are ventricular events. Spec. ¶ 58. AE1 and AE2 can be sensed atrial depolarizations or paced atrial depolarizations. *Id.* Cross-hatched blocks 70 and 72 are atrial refractory periods and ventricular refractory periods respectively. *Id.* AP1 and AP2 represent the delivery of atrial pacing pulses. *Id.* ¶ 62. The line notated as 74 represents the time period between the end of an atrial refractory period and the end of the subsequent corresponding ventricular refractory period. *Id.* Claim 1 recites that the control module is configured to “generate a pacing pulse to an atrium of the heart” during the time period represented as 74 in Figure 4B.

The Examiner acknowledges that there is a “difference between the pacing escape interval and the intrinsic, physiological refractory period.”

Ans. 3. In doing so, the Examiner does not dispute Appellant's assertion that the "pacing escape interval would be the amount of time between a last atrial paced event and the current atrial paced event or the A-A interval." Appeal Br. 6 (citing Funke, ¶ 83). In Appellant's Figure 4B, the pacing escape interval corresponds to the time period between the delivery of atrial pacing pulses AP1 and AP2. The time period between AP1 and AP2 is significantly longer than the time period 74. The timing sequence recited in claim 1 requires that a pacing pulse (such as AP1 for example) be generated during time period 74 between the end of the atrial refractory period 70 for atrial depolarization AE1 and the end of the ventricular refractory period 72 after ventricular depolarization VE1 corresponding to atrial depolarization AE1. While we appreciate the Examiner's analysis leading to the finding that Funke is "capable" of generating an atrial pacing pulse during the recited time period, such a finding, even if correct, is insufficient where the claim requires a control module "configured" to generate an atrial pacing pulse during the recited time period. Consequently, we do not sustain the rejection of claims 1, 11, and 20 under 35 U.S.C. § 102(b). Further, we do not sustain the rejection of claims 2–8 and 10 which depend from claim 1 and claims 12–19 which depend from claim 11.

Rejection 2

The Examiner rejects claim 9 as unpatentable over Funke and Stubbs. Final Act. 5. Claim 9 depends from claim 1. Appeal Br. 13 (Claims App.). The Examiner does not rely on Stubbs to cure the deficiencies of Funke discussed above for claim 1. Final Act. 5. Therefore, we do not sustain the rejection of claim 9 for the same reasons stated for claim 1.

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Application 13/647,705

DECISION

The Examiner's decision rejecting claims 1–20 is reversed.

REVERSED